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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,648	03/20/2002	Shinichi Takeshima	112342	2766

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EXAMINER	
JOHNSON, CHRISTINA ANN	

ART UNIT	PAPER NUMBER
1725	

DATE MAILED: 09/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/088,648	TAKESHIMA ET AL.	
	Examiner	Art Unit	
	Christina Johnson	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 July 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,7,8 and 11-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,7,8 and 11-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 7-8, and 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 1 004 347.

EP 1 004 347 discloses a catalyst composition useful in the purification of exhaust gas. The catalyst composition contains two functional layers superimposed on an inert supporting body, wherein the first layer has a nitrogen oxide storing function and the second layer has a catalytic function (0023). It is further taught that the second functional layer of the catalyst additionally has a hydrocarbon storage function and its catalytic function is provided by catalytically active noble metals of the platinum group which are deposited in highly dispersed form on finely divided acidic carrier materials (0023). Suitable acidic support materials include aluminum silicates, silica, titania, and zirconia (0033). Suitable zeolites include those having a silica to alumina molar ratio greater than 20 (0034) and (0038). The use of zeolites having a molar ratio greater than 40 are exemplified. Suitable platinum group metals include platinum and/or palladium (0033). Suitable nitrogen oxide storing materials for the first functional layer include alkali or alkaline earth metals (0043). This layer may further contain transition metal

oxides (0043). Refer also to Table 1 , which details specific compositions for the first and second functional layers. The layers are loaded upon a monolithic honeycomb body, which is considered to meet the particulate matter filter.

With respect to the language of the claims, the second functional layer is considered to correspond to the NO oxidation catalyst and the first functional layer is considered to correspond to the NO2 decomposition catalyst.

The recitations "decomposition catalyst" and "oxidation catalyst" are noted by the examiner. These recitations are regarded by the examiner as statements of intended use. While intended use recitations cannot entirely be disregarded, in composition and article claims, the intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention over the prior art. In re Casey, 370 USPQ 236 and In re Otto, 312 USPQ 458. It is the position of the examiner that the prior art structure is capable of performing the intended use and therefore meets the instant claims.

As each and every element of the claimed invention is taught in the prior art as recited above, the claims are anticipated by EP 1 004 347.

3. Claims 1-2, 7-8, and 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 1 008 378.

EP 1 008 378 discloses an exhaust gas purifying catalyst. The catalyst composition comprises a first layer containing alumina on a substrate and a second layer containing zeolite over the alumina layer (page 3, Lines 25-30). The use of a MFI zeolite having a silica to alumina molar ratio of 80 is exemplified. It is taught that the first

catalytic layer further comprises a first noble metal such as platinum and a Nox absorbing component such as Ba (page 4, Lines 15-20). The second layer further comprises a second noble metal such as platinum or rhodium (page 4, lines 20-23). The layers are loaded upon a monolithic honeycomb body, which is considered to meet the particulate matter filter.

With respect to the language of the claims, the second layer is considered to correspond to the NO oxidation catalyst and the first layer is considered to correspond to the NO2 decomposition catalyst.

The recitations "decomposition catalyst" and "oxidation catalyst" are noted by the examiner. These recitations are regarded by the examiner as statements of intended use. While intended use recitations cannot entirely be disregarded, in composition and article claims, the intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention over the prior art. In re Casey, 370 USPQ 236 and In re Otto, 312 USPQ 458. It is the position of the examiner that the prior art structure is capable of performing the intended use and therefore meets the instant claims.

As each and every element of the claimed invention is taught in the prior art as recited above, the claims are anticipated by EP 1 008 378.

4. Claims 1, 7, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki et al.

Suzuki et al. (US 5,849,254) discloses an exhaust gas purifying catalyst. The catalyst composition comprises a first catalyst in which a noble metal catalyst is loaded

on a porous acidic support, a second catalyst in which a Nox absorber selected from the group consisting of alkali metals, alkaline earth metals and rare earth metals is loaded on a porous support and a third catalyst in which a noble metal catalyst is loaded on a porous support (column 2, lines 30-40). The second catalyst may further contain a transition metal (column 2, lines 40-50). Suitable acidic supports for the first catalyst include silica, zirconia, silica-alumina, and titania (page 2, lines 60-65). Suitable supports for the second and third catalyst include alumina, zeolite, silica, zirconia, and silica-alumina (column 3, lines 15-20). In the first preferred embodiment, silica is used as the first support and alumina is used as the second support. See columns 5-6 and Table 1. The catalysts are loaded on honeycomb support materials which are considered to meet the particulate matter filter.

With respect to the language of the claims, the first catalyst is considered to correspond to the NO oxidation catalyst and the second catalyst is considered to correspond to the NO2 decomposition catalyst.

The recitations "decomposition catalyst" and "oxidation catalyst" are noted by the examiner. These recitations are regarded by the examiner as statements of intended use. While intended use recitations cannot entirely be disregarded, in composition and article claims, the intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention over the prior art. In re Casey, 370 USPQ 236 and In re Otto, 312 USPQ 458. It is the position of the examiner that the prior art structure is capable of performing the intended use and therefore meets the instant claims.

As each and every element of the claimed invention is taught in the prior ad as recited above, the claims are anticipated by Suzuki et al.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-2, 7-8, and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 852 966 in view of EP 1 004 347.

EP 0 852 966 discloses a catalyst composition useful in the purification of exhaust gas. The catalyst composition comprises a first powder comprising porous particles supporting rhodium and a second powder comprising porous particles supporting platinum and a nitrogen oxides storing material such as alkali or alkaline earth metals (page 3, lines 5-10 and page 8, lines 25-30). The first powder may further include a hydrocarbon adsorbent such as a zeolite (page 5, lines 53-58 and page 6, lines 1-10). Examples of the porous particles include alumina, silica, titania, zirconia, silica-alumina, and zeolite (page 8, 1-5). The reference specifically teaches a composition comprising a first powder containing rhodium, zirconia, and a zeolite and a second powder containing platinum, barium, and alumina (Example 12 and Fig 14). It is taught that the powders may be loaded on a monolithic structure, which is considered to meet the particulate matter filter required.

With respect to the language of the claims, the first powder is considered to correspond to the NO oxidation catalyst and the second powder is considered to correspond to the NO2 decomposition catalyst.

The recitations "decomposition catalyst" and "oxidation catalyst" are noted by the examiner. These recitations are regarded by the examiner as statements of intended use. While intended use recitations cannot entirely be disregarded, in composition and article claims, the intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention over the prior art. In re Casey, 370 USPQ 236 and In re Otto, 312 USPQ 458. It is the position of the examiner that the prior art structure is capable of performing the intended use and therefore meets the instant claims.

For the species zeolite:

The difference between the reference and the claims is that the reference does not disclose that the zeolite has a silica to alumina molar ratio of 40 or greater.

EP 1 004 347 discloses a catalyst composition useful in the purification of exhaust gases which includes a zeolite hydrocarbon adsorbent (0023), (0034), and (0038). Suitable zeolites include those having a silica to alumina molar ratio greater than 20 (0034) and (0038). The use of zeolites having a molar ratio greater than 40 are exemplified.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the catalyst of EP '966 to include the use of zeolites having the claimed composition in light of the teaching by EP '347 that such

zeolites are suitable and useful for the adsorption of hydrocarbons in exhaust gases and as such are the functional equivalent of the zeolites taught by EP '966.

7. Claims 1-2, 7-8, and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 852 966.

EP 0 852 966 discloses a catalyst composition useful in the purification of exhaust gas. The catalyst composition comprises a first powder comprising porous particles supporting rhodium and a second powder comprising porous particles supporting platinum and a nitrogen oxides storing material such as alkali or alkaline earth metals (page 3, lines 5-10 and page 8, lines 25-30). The first powder may further include a hydrocarbon adsorbent such as a zeolite (page 5, lines 53-58 and page 6, lines 1-10). Examples of the porous particles include alumina, silica, titania, zirconia, silica-alumina, and zeolite (page 8, 1-5). The reference specifically teaches a composition comprising a first powder containing rhodium, zirconia, and a zeolite and a second powder containing platinum, barium, and alumina (Example 12 and Fig 14). It is taught that the powders may be loaded on a monolithic structure, which is considered to meet the particulate matter filter required.

With respect to the language of the claims, the first powder is considered to correspond to the NO oxidation catalyst and the second powder is considered to correspond to the NO2 decomposition catalyst.

The recitations "decomposition catalyst" and "oxidation catalyst" are noted by the examiner. These recitations are regarded by the examiner as statements of intended use. While intended use recitations cannot entirely be disregarded, in composition and

article claims, the intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention over the prior art. In re Casey, 370 USPQ 236 and In re Otto, 312 USPQ 458. It is the position of the examiner that the prior art structure is capable of performing the intended use and therefore meets the instant claims.

For the species silica and silica-alumina:

The difference between the reference and the claims is that the reference does not specifically disclose an embodiment wherein the first powder includes silica or silica-alumina. However, the reference does disclose that suitable particles for the first and second powders include silica, zirconia and silica-alumina (page 8, lines 1-5).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the specific examples provided to include the use of silica or silica-alumina in place of zirconia, in light of the teaching by the reference that such particles are functionally equivalent to the zirconia. One of ordinary skill would be motivated to substitute known functionally equivalent supporting particles in the first powder, with a reasonable expectation of success.

Response to Arguments

8. Applicant's arguments filed July 21, 2004 have been fully considered but they are not persuasive.

With respect to the rejection over EP 1 004 347, applicant argues that EP '347 describes a catalyst for purifying exhaust gases in which two separate functional layers

are superposed together upon the same inert supporting body while the catalyst recited in the instant claims require that the NO oxidation catalyst and the NO_2 decomposition catalyst are carried upon separate carriers comprised of different materials. This argument has been considered but is not persuasive. In each of the layers taught by EP '347, the catalytic material is supported by separate carrier materials. Therefore, it is the position of the examiner that the reference would meet the catalyst instantly claimed.

With respect to the rejection over EP 1 008 378, applicant argues that EP '378 does not teach a NO oxidation catalyst comprising the components claimed or a NO_2 decomposition catalyst. This argument has been considered but is not persuasive. The reference teaches a second layer which corresponds to the NO oxidation catalyst and contains a transition metal such as a noble metal and an alkali metal supported on a high silica zeolite support. Refer to [0007], [0016], [0021]. The NO_2 decomposition catalyst corresponds to the first layer which meets the claimed composition. Refer to [0006], [0010], and [0016].

Applicant further argues with respect to EP '378 that a characteristic feature of the claimed invention is that the catalyst includes both a NO oxidation catalyst and a NO2 decomposition catalyst and the catalyst effects of both catalysts are combined to promote oxidation of particulate matter contained in exhaust gases emitted from internal combustion engines. This argument has been considered but is not persuasive. Applicant appears to be arguing the intended use of the composition whereas the instant claims are directed towards a product. Applicant has failed to show how the intended use of the composition results in a structural difference over the prior art

reference. In this case, it is the position of the examiner that because the prior art meets the structure required by the claims, it would be capable of performing the intended use.

Applicant further argues with respect to '378 that the reference does not teach "present in a mixed state" as required by new claims 11-14. However, only claims 11-12 require the presence randomly mixed state. Claims 13-14 are met by the layered structure taught by the reference.

With respect to the Suzuki reference, applicant argues that the reference does not teach or suggest the use of a NO2 decomposition catalyst as claimed as the second catalyst (which the examiner maintains would meet the NO2 decomposition catalyst) performs a different function. This argument has been considered but is not persuasive. Applicant appears to be arguing the intended use of the composition whereas the instant claims are directed towards a product. Applicant has failed to show how the intended use of the composition results in a structural difference over the prior art reference. In this case, it is the position of the examiner that because the prior art meets the structure required by the claims, it would be capable of performing the intended use.

Applicant further argues with respect to Suzuki et al. that the reference does not teach "present in a mixed state" as required by new claims 11-14. However, only claims 11-12 require the presence randomly mixed state. Claim 13 is met by the layered structure taught by the reference.

With respect to the EP '966 reference, the examiner notes that the amendments to claims 1 and 2 are sufficient to overcome the rejections under 35 USC 102(b). However, the claims are subject to a rejection under 35 USC 103(a).

Applicant argues with respect to the EP '966 reference that the reference does not disclose that the catalyst is capable of dealing with particulate matter and further argues that the reference does not teach or suggest a catalyst comprising the combination of a NO oxidation catalyst and NO2 decomposition catalyst. This argument has been considered but is not persuasive. Applicant appears to be arguing the intended use of the composition whereas the instant claims are directed towards a product. Applicant has failed to show how the intended use of the composition results in a structural difference over the prior art reference. In this case, it is the position of the examiner that because the prior art meets the structure required by the claims, it would be capable of performing the intended use. As discussed above, the first powder is considered to correspond to the NO oxidation catalyst and the second powder is considered to correspond to the NO2 decomposition catalyst.

With respect to the rejection under 103(a) over EP '966 in view of EP '347, applicant appears to be arguing the second reference separately, which is not proper. The rejection is based upon a combination of references. It is the position of the examiner that the primary reference teaches the claimed invention except for the use of a high silica zeolite. The secondary reference is relied upon to teach this feature. Applicant has not presented any arguments tending to rebut the prima facie case of obviousness set forth by the examiner.

With respect to the rejection over EP '966 alone, applicant argues that the reference does not teach a NO oxidation catalyst in combination with a NO2 decomposition catalyst. However, as discussed above, Applicant appears to be arguing

the intended use of the composition whereas the instant claims are directed towards a product. Applicant has failed to show how the intended use of the composition results in a structural difference over the prior art reference. In this case, it is the position of the examiner that because the prior art meets the structure required by the claims, it would be capable of performing the intended use. As discussed above, the first powder is considered to correspond to the NO oxidation catalyst and the second powder is considered to correspond to the NO2 decomposition catalyst.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Johnson whose telephone number is (571) 272-1176. The examiner can normally be reached on Monday-Friday, 7:30-5, with Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christina Johnson
Patent Examiner
Art Unit 1725
9/27/04

CAJ
September 27, 2004